

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A shock absorbing steering apparatus for use in a vehicle, comprising:

a steering column to be fixed to a portion of a body of the vehicle such that the steering column is releasable from the body of the vehicle and movable in a forward direction of the vehicle in the event of a secondary collision of an occupant of the vehicle upon a collision of the vehicle, one of the steering column and said portion of the body of the vehicle including a mounting portion, and the other of the steering column and said portion of the body of the vehicle including a holding portion; and

an impact energy absorbing member to be mounted on the mounting portion, the impact energy absorbing member including an engaging portion which is engageable with the holding portion and being deformable as the steering column is moved in the forward direction of the vehicle while the engaging portion is held in engagement with the holding portion, whereby the impact energy absorbing member absorbs an impact energy generated by the secondary collision; and

an engagement adjusting mechanism operable to permit or inhibit an engagement between the engaging portion of the impact energy absorbing member and said holding portion;

wherein the impact energy absorbing member is arranged to be positioned relative to the mounting portion such that the engaging portion and the holding portion are spaced from each other by a predetermined free-running distance in said forward direction before the steering column is moved in the forward direction relative to the portion of the body of the vehicle.

2. (Canceled)

3. (Original) The shock absorbing steering apparatus according to claim 2, wherein the engagement adjusting mechanism includes an actuator operable between a first position for permitting the engagement between the engaging portion and the holding portion, and a second for inhibiting said engagement.

4. (Original) The shock absorbing steering apparatus according to claim 3, wherein the engagement adjusting mechanism is arranged such that an impact energy absorbing load to be generated by deformation of the impact energy absorbing member does not act on said actuator when the engaging portion is brought into engagement with the holding portion.

5. (Previously Presented) The shock absorbing apparatus according to claim 2, wherein the engagement adjusting mechanism is operable to permit or inhibit the engagement between the engaging portion and the holding portion, on the basis of an output of a sensor provided to detect a state of the vehicle or an occupant of the vehicle.

6. (Currently Amended) ~~The shock absorbing steering apparatus according to claim 2,~~ A shock absorbing steering apparatus for use in a vehicle, comprising:

a steering column to be fixed to a portion of a body of the vehicle such that the steering column is releasable from the body of the vehicle and movable in a forward direction of the vehicle in the event of a secondary collision of an occupant of the vehicle upon a collision of the vehicle, one of the steering column and said portion of the body of the vehicle including a mounting portion, and the other of the steering column and said portion of the body of the vehicle including a holding portion;

an impact energy absorbing member to be mounted on the mounting portion, the impact energy absorbing member including an engaging portion which is engageable with the holding portion and being deformable as the steering column is moved in the forward

direction of the vehicle while the engaging portion is held in engagement with the holding portion, whereby the impact energy absorbing member absorbs an impact energy generated by the secondary collision; and

_____ an engagement adjusting mechanism operable to permit or inhibit an engagement between the engaging portion of the impact energy absorbing member and said holding portion;

_____ wherein the engagement adjusting mechanism includes a mechanism operable to cause the holding portion to be displaced by an amount corresponding to a magnitude of an impact applied to the body of the vehicle upon the collision of the vehicle, and a mechanism operable to permit the engagement between the engaging portion and the holding portion when the amount of displacement of the holding portion is larger than a predetermined threshold.

7. (Original) The shock absorbing steering apparatus according to claim 6, wherein said mechanism operable to cause the holding portion to be displaced by the amount corresponding to the magnitude of the impact is arranged to cause a displacement of the holding portion by utilizing an inertia mass of the holding portion.

8. (Canceled)

9. (Currently Amended) The shock absorbing steering apparatus according to ~~claim 8~~claim 1, wherein one of the engaging portion and the holding portion includes a recessed part which has a recess engageable with the other of the engaging and holding portions and cooperates with said other to define therebetween the predetermined free-running distance.

10. (Currently Amended) ~~The shock absorbing steering apparatus according to claim 1, further~~ A shock absorbing steering apparatus for use in a vehicle, comprising:

a steering column to be fixed to a portion of a body of the vehicle such that the steering column is releasable from the body of the vehicle and movable in a forward direction of the vehicle in the event of a secondary collision of an occupant of the vehicle upon a collision of the vehicle, one of the steering column and said portion of the body of the vehicle including a mounting portion, and the other of the steering column and said portion of the body of the vehicle including a holding portion;

an impact energy absorbing member to be mounted on the mounting portion, the impact energy absorbing member including an engaging portion which is engageable with the holding portion and being deformable as the steering column is moved in the forward direction of the vehicle while the engaging portion is held in engagement with the holding portion, whereby the impact energy absorbing member absorbs an impact energy generated by the secondary collision; and

an initial-load adjusting mechanism operable to reduce a rate of increase of an impact energy absorbing load to be generated by the impact energy absorbing member in an initial period of the absorption of the impact energy, the initial-load adjusting mechanism being provided at ~~at~~ in at least one position selected from among: a position between the impact energy absorbing member and the ~~steering column~~ portion of the body of the vehicle; a position on the impact energy absorbing member; and a position between the impact energy absorbing member and the steering column.

11. (Currently Amended) ~~The shock absorbing steering apparatus according to claim 1,~~ A shock absorbing steering apparatus for use in a vehicle, comprising:

a steering column to be fixed to a portion of a body of the vehicle such that the steering column is releasable from the body of the vehicle and movable in a forward direction of the vehicle in the event of a secondary collision of an occupant of the vehicle upon a collision of the vehicle, one of the steering column and said portion of the body of the vehicle

including a mounting portion, and the other of the steering column and said portion of the body of the vehicle including a holding portion; and

an impact energy absorbing member to be mounted on the mounting portion, the impact energy absorbing member including an engaging portion which is engageable with the holding portion and being deformable as the steering column is moved in the forward direction of the vehicle while the engaging portion is held in engagement with the holding portion, whereby the impact energy absorbing member absorbs an impact energy generated by the secondary collision;

wherein the engaging portion of the impact energy absorbing member and the holding portion are engageable with each other so as to provisionally hold the steering column on the portion of the body of the vehicle through the impact energy absorbing member when the steering column is fixed to the portion of the body of the vehicle.

12. (Previously Presented) The shock absorbing steering apparatus according to claim 1, wherein the impact energy absorbing member is a plate having an end portion formed as said engaging portion.

13. (Original) The shock absorbing steering apparatus according to claim 12, wherein the engaging portion and the holding portion are arranged such that the engaging portion receives a shearing load after the engaging portion is brought into engagement with the holding portion.

14. (Previously Presented) The shock absorbing steering apparatus according to claim 12, wherein the impact energy absorbing member includes a plurality of plates which are superposed on each other and each of which has said engaging portion.

15. (Previously Presented) The shock absorbing steering apparatus according to claim 12, wherein the impact energy absorbing plate includes a generally U-shaped portion consisting of a curved section and two arm sections extending from respective opposite ends

of the curved section, the impact energy absorbing member being arranged to be mounted on said mounting portion such that the two arm sections extend in a direction almost parallel to a direction of movement of the steering column relative to the portion of the body of the vehicle and such that the mounting portion is sandwiched by and between the two arm sections in a direction of thickness of the plate of the impact energy absorbing member, said impact energy absorbing member being deformed by one end portion of the mounting portion, during the movement of the steering column relative to the portion of the body of the vehicle in the forward direction of the vehicle with the engaging portion held in engagement with the holding portion, such that a position of the curved section in the impact energy absorbing member is gradually changed, whereby the impact energy generated by the secondary collision is absorbed in the process of deformation of the impact energy absorbing member.

16. (Original) The shock absorbing steering apparatus according to claim 15, wherein the engaging portion is formed integrally with one of the two arm sections such that the engaging portion extends, from one end of said one arm section which is remote from the curved section, in a direction away from the other of the two arm sections.

17. (Currently Amended) ~~The shock absorbing steering apparatus according to claim 1,~~ A shock absorbing steering apparatus for use in a vehicle, comprising:
a steering column to be fixed to a portion of a body of the vehicle such that the steering column is releasable from the body of the vehicle and movable in a forward direction of the vehicle in the event of a secondary collision of an occupant of the vehicle upon a collision of the vehicle, one of the steering column and said portion of the body of the vehicle including a mounting portion, and the other of the steering column and said portion of the body of the vehicle including a holding portion; and
an impact energy absorbing member to be mounted on the mounting portion, the impact energy absorbing member including an engaging portion which is engageable with

the holding portion and being deformable as the steering column is moved in the forward direction of the vehicle while the engaging portion is held in engagement with the holding portion, whereby the impact energy absorbing member absorbs an impact energy generated by the secondary collision;

_____ wherein the steering column includes a column body, and a column holder structure which holds the column body and which is fixed to said portion of the body of the vehicle such that the column holder structure is releasable and movable away from the portion of the body of the vehicle in the forward direction of the vehicle, in the event of said secondary collision, and the column holder structure includes said mounting portion while said portion of the body of the vehicle is provided with said holding portion; and

_____ the impact energy absorbing member is a plate, and includes a generally U-shaped portion consisting of a curved section and two arm sections extending from respective opposite ends of the curved section, and one of the two arm sections includes an end portion terminating in said engaging portion, the impact energy absorbing member being arranged to be mounted on said mounting portion such that the two arm sections extend in a direction almost parallel to a direction of movement of the steering column relative to the portion of the body of the vehicle and such that the mounting portion is sandwiched by and between the two arm sections in a direction of thickness of the plate of the impact energy absorbing member, the impact energy absorbing member being deformed by a front end portion of the mounting portion, during the movement of the steering column relative to the portion of the body of the vehicle in the forward direction of the vehicle with the engaging portion held in engagement with the holding portion, such that a position of the curved section in the impact energy absorbing member is gradually changed, whereby the impact energy generated by the secondary collision is absorbed in the process of deformation of the impact energy absorbing member.

18. (Original) The shock absorbing steering apparatus according to claim 17, wherein the column holder structure includes a pair of arms which are spaced apart from each other in a lateral direction of the vehicle, and a central portion which is located almost intermediate between the pair of arms in the lateral direction, the column holder structure being fixed at the pair of arms to said portion of the body of the vehicle, and the mounting portion being located in the central portion of the column holder structure.

19. (Previously Presented) The shock absorbing steering apparatus according to claim 17, wherein the column holder structure holds the column body through a tilting mechanism.

20. (Previously Presented) The shock absorbing steering apparatus according to claim 17, wherein the column holder structure holds the column body through a telescopic mechanism.

21. (Canceled)

22. (Currently Amended) The shock absorbing steering apparatus according to ~~claim 21~~claim 17, wherein the engaging portion is formed integrally with one of the two arms such that the engaging portion extends, from an end of said end portion of said one arm section which end is remote from the curved section, in a direction away from the other of the two arm sections.

23. (Currently Amended) The shock absorbing steering apparatus according to ~~claim 21~~claim 17, wherein the front end portion of the mounting portion is formed as a guide portion for guiding a displacement of the curved section of the impact energy absorbing member along a curvature of the front end portion while the impact energy absorbing member is deformed.

24. (Original) The shock absorbing steering apparatus according to claim 23, wherein the mounting portion of the column holder structure consists of two plates which are

superposed on each other such that one end portion of one of the two plates projects from a corresponding front end face of the other of the two plates in the forward direction of the vehicle, and the guide portion of the mounting portion is constituted by a guide member which is generally J-shaped in cross section and which has a short arm and a long arm, the guide member being fitted on said one end portion of said one plate such that a rear end face of the short arm is held opposed to the front end face of said other plate.

25. (Original) The shock absorbing steering apparatus according to claim 23, wherein the mounting portion of the column holder structure includes a plate having a generally U-shaped projecting end portion which constitutes the guide portion.

26. (Previously Presented) The shock absorbing steering apparatus according to claim 23, wherein the impact energy absorbing member is mounted on the mounting portion such that there is an air gap between the curved section and the guide portion.

27. (Currently Amended) The shock absorbing steering apparatus according to ~~claim 21~~claim 17, further comprising positioning and holding means for positioning and holding said one arm section of the impact energy absorbing member with respect to the column holder structure.

28. (Original) The shock absorbing steering apparatus according to claim 27, wherein the positioning and holding means includes a pair of positioning and holding pieces disposed on opposite sides of said one arm section such that the pair of positioning and holding pieces are spaced from each other in a direction of width of said one arm section.

29. (Original) The shock absorbing steering apparatus according to claim 28, wherein the pair of positioning and holding pieces have respective mutually opposed slant surfaces which are formed such that a distance between the opposed slant surfaces decreases in a direction from said other arm section toward said one arm section.

30. (Original) The shock absorbing steering apparatus according to claim 29, wherein said one arm section of the generally U-shaped portion of the impact energy absorbing member is supported by a portion of the mounting portion, at an inner surface of said one arm section which faces inwardly of the generally U-shaped portion.

31. (Previously Presented) The shock absorbing steering apparatus according to claim 28, wherein the engaging portion is formed integrally with said one arm section such that the engaging portion extends, from one end of said one arm section which is remote from the curved section, in a direction away from the other of the two arm sections and such that the engaging portion has a larger height than the pair of positioning and holding pieces, as measured from an outer surface of said one arm section that is opposite to an inner surface thereof which faces inwardly of the generally U-shaped portion, the engaging portion being engageable at a free end portion thereof with said holding portion, and having a width smaller than a distance between the pair of positioning and holding pieces, at a height position of the engaging portion which corresponds to the height of the pair of positioning and holding pieces.

32. (Previously Presented) The shock absorbing steering apparatus according to claim 27, wherein the mounting portion includes a guide member located at a front end portion thereof and operable to guide a displacement of the curved section of the impact energy absorbing member while the impact energy absorbing member is deformed, and the guide member includes a rear extension extending in a rearward direction of the vehicle, the pair of positioning and holding means being provided on the rear extension.

33. (Original) The shock absorbing steering apparatus according to claim 32, wherein the rear extension of the guide member includes a positioning and holding portion for positioning and holding the other of the two arm sections of the impact energy absorbing member.

34. (Original) The shock absorbing steering apparatus according to claim 27, wherein the mounting portion includes a supporting portion, and the positioning and holding means includes a generally rectangular three-sided clip having an elastically deformable portion which cooperates with the supporting portion to elastically hold therebetween said one arm section of the generally U-shaped portion of the impact energy absorbing member in elastically pressing contact therewith in a direction of thickness of said one arm section.

35. (Original) The shock absorbing steering apparatus according to claim 27, wherein the mounting portion includes a supporting portion, and the positioning and holding means includes a holding band which cooperates with the supporting portion to hold said one arm section of the generally U-shaped portion of the impact energy absorbing member, the holding band having a variable effective length of holding.

36. (Currently Amended) The shock absorbing steering apparatus according to claim 21, wherein the column holder structure has a pair of slots which are spaced apart from each other in a lateral direction of the vehicle and through which the column holder structure is attached to the portion of the body of the vehicle such that the column holder structure is releasable and movable away from the portion of the body of the vehicle in the forward direction of the vehicle, the column holder structure further including a central portion which is located almost intermediate between the pair of slots in the lateral direction and which includes the mounting portion on which the impact energy absorbing member is ~~mounted,~~mounted; and

~~and wherein~~ the impact energy absorbing member includes a pair of wing portions which extend from said one arm section in respective opposite directions parallel to the lateral direction of the vehicle and which are provided with respective cylindrical portions which are respectively press-fitted in the pair of slots of the column holder structure and

which are releasable from the pair of slots when the column holder structure is moved away from the portion of the body of the vehicle in the forward direction of the vehicle.

37. (Canceled)

38. (Currently Amended) ~~The shock absorbing steering apparatus according to claim 37,~~ A shock absorbing steering apparatus for use in a vehicle, comprising:

a steering column to be fixed to a portion of a body of the vehicle such that the steering column is releasable from the body of the vehicle and movable in a forward direction of the vehicle in the event of a secondary collision of an occupant of the vehicle upon a collision of the vehicle, one of the steering column and said portion of the body of the vehicle including a mounting portion, and the other of the steering column and said portion of the body of the vehicle including a holding portion;

an impact energy absorbing member to be mounted on the mounting portion, the impact energy absorbing member including an engaging portion which is engageable with the holding portion and being deformable as the steering column is moved in the forward direction of the vehicle while the engaging portion is held in engagement with the holding portion, whereby the impact energy absorbing member absorbs an impact energy generated by the secondary collision; and

an energy-absorbing-load changing mechanism operable to change an impact energy absorbing load to be generated by deformation of the impact energy absorbing member, depending upon a velocity of the movement of the steering column in the forward direction of the vehicle relative to the portion of the body of the vehicle;

wherein the energy-absorbing-load changing mechanism increases the impact energy absorbing load with an increase in the velocity of movement of the steering column.

39. (Currently Amended) ~~The shock absorbing steering apparatus according to claim 37,~~ A shock absorbing steering apparatus for use in a vehicle, comprising:

a steering column to be fixed to a portion of a body of the vehicle such that the steering column is releasable from the body of the vehicle and movable in a forward direction of the vehicle in the event of a secondary collision of an occupant of the vehicle upon a collision of the vehicle, one of the steering column and said portion of the body of the vehicle including a mounting portion, and the other of the steering column and said portion of the body of the vehicle including a holding portion;

an impact energy absorbing member to be mounted on the mounting portion, the impact energy absorbing member including an engaging portion which is engageable with the holding portion and being deformable as the steering column is moved in the forward direction of the vehicle while the engaging portion is held in engagement with the holding portion, whereby the impact energy absorbing member absorbs an impact energy generated by the secondary collision; and

an energy-absorbing-load changing mechanism operable to change an impact energy absorbing load to be generated by deformation of the impact energy absorbing member, depending upon a velocity of the movement of the steering column in the forward direction of the vehicle relative to the portion of the body of the vehicle;

wherein the energy-absorbing-load changing mechanism changes the impact energy absorbing load such that the impact energy absorbing load is larger when the velocity of movement of the steering column is higher than a predetermined threshold, than when the velocity is not higher than the predetermined threshold.

40. (Currently Amended) The shock absorbing steering apparatus according to ~~claim 37~~claim 38, wherein the energy-absorbing-load changing mechanism changes the impact energy absorbing load by changing a force of resistance to the deformation of the impact energy absorbing member.

41. (Currently Amended) The shock absorbing steering apparatus according to claim 40, wherein the impact energy absorbing member is a plate, and includes a generally U-shaped portion consisting of a curved section and two arm sections extending from respective opposite ends of the curved section, and one of the two arm sections includes an end portion terminating in said engaging portion, the impact energy absorbing member being arranged to be mounted on said mounting portion such that the two arm sections extend in a direction of movement of the steering column relative to the portion of the body of the vehicle and such that the mounting portion is sandwiched by and between the two arm sections in a direction almost parallel to a direction of thickness of the plate of the impact energy absorbing member, the impact energy absorbing member being deformed by an end portion of the mounting portion, during the movement of the steering column relative to the portion of the body of the vehicle in the forward direction of the vehicle with the engaging portion held in engagement with the holding portion, such that a position of the curved section in the impact energy absorbing member is gradually changed, whereby the impact energy generated by the secondary collision is absorbed in the process of deformation of the impact energy absorbing member, member, and

and wherein said energy-absorbing-load changing mechanism includes (a) a deformation-resistance increasing member provided on said mounting portion and engageable with the impact energy absorbing member so as to increase the force of resistance to the deformation of the impact energy absorbing member, and (b) an engaging mechanism operable to cause engagement of the deformation-resistance increasing member with the impact energy absorbing member when a velocity of movement of the impact energy absorbing member relative to said front end portion of the mounting portion is higher than a predetermined threshold.

42. (Currently Amended) The shock absorbing steering apparatus according to claim 40, The shock absorbing steering apparatus according to claim 40, wherein the impact energy absorbing member is a plate, and includes a generally U-shaped portion consisting of a curved section and two arm sections extending from respective opposite ends of the curved section, and one of the two arm sections includes an end portion terminating in said engaging portion, the impact energy absorbing member being arranged to be mounted on said mounting portion such that the two arm sections extend in a direction almost parallel to a direction of movement of the steering column relative to the portion of the body of the vehicle and such that the mounting portion is sandwiched by and between the two arm sections in a direction almost parallel to a direction of thickness of the plate of the impact energy absorbing member, the impact energy absorbing member being deformed by an end portion of the mounting portion, during the movement of the steering column relative to the portion of the body of the vehicle in the forward direction of the vehicle with the engaging portion held in engagement with the holding portion, such that a position of the curved section in the impact energy absorbing member is gradually changed, whereby the impact energy generated by the secondary collision is absorbed in the process of deformation of the impact energy absorbing member, member; and

~~and wherein~~ said energy-absorbing-load changing mechanism includes (a) a movable member provided on said mounting portion and engageable with the impact energy absorbing member such that the movable member is movable when the impact energy absorbing member is displaced relative to said front end portion of the mounting portion, and (b) a movable-member-movement restricting mechanism operable to restrict a movement of the movable member when a velocity of movement of the movable member is higher than a predetermined threshold.